

Joshua Spitz

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Education and Work

Massachusetts Institute of Technology

- Research Scientist
Pappalardo Fellow in Physics
- **Yale University**

Cambridge, MA

Sep. 2014-present
2011-2014

New Haven, CT

- PhD, M.Phil., M.S., Physics
 - PhD thesis: “Measuring Muon-Neutrino Charged-Current Differential Cross Sections with a Liquid Argon Time Projection Chamber”.

University of Colorado at Boulder

- B.A. Physics and Astronomy (double major)
 - Graduated *summa cum laude* with an undergraduate thesis: “T2K Beam Monte Carlo Study”.

Boulder, CO

2002-2006

Awards and Service

- Double Chooz Time Projection Chamber (DCTPC) project leader, 2011-present.
- Pappalardo Fellowship award, 2011.
- ArgoNeuT run coordinator, 2009-2010.
- Organizing committee (co-chair), New Perspectives Conference at Fermilab, 2009.
- Organizing committee (co-chair), Fermilab User’s Meeting Poster Session, 2009.
- American Association of Physics Teachers Outstanding Teaching Assistant of the Year, 2009.
- Graduate Student Association at Fermilab, elected representative, 2008-2009.
- User’s Executive Committee at Fermilab, graduate representative, 2008-2009.
- University of Colorado Undergraduate Research Opportunities grant, 2005, 2006.

Experiment Affiliation

- **DCTPC**, 2011-present (Project leader)
- **Double Chooz**, 2011-present
- **DAE δ ALUS and IsoDAR**, 2009-present
- **ArgoNeuT**, 2007-present (Graduate thesis experiment)
- **MicroBooNE**, 2007-present
- **LBNF (LBNE)**, 2009-present
- **MiniBooNE**, 2008-2011

- **T2K**, 2004-2006 (Undergraduate thesis experiment)

Selected Peer-reviewed Publications

*=Publications with J. Spitz as the corresponding author (11 total)

1. **Annual Modulation of Cosmic Relic Neutrinos**
B.R. Safdi, M. Lisanti, J. Spitz, and J.A. Formaggio, Physical Review D **90** 043001 (2014).
2. ***Cross Section Measurements with Monoenergetic Muon Neutrinos**
J. Spitz, Physical Review D **89** 073007 (2014).
3. ***Search for Neutrino-Antineutrino Oscillations with a Reactor Experiment**
J.S. Díaz, T. Katori, J. Spitz, and J.M. Conrad, Physics Letters B **727** 412 (2013).
4. ***First Test of Lorentz Violation with a Reactor-based Antineutrino Experiment**
Y. Abe *et al.* [Double Chooz Collaboration], Physical Review D **86** 112009 (2012).
5. **The ArgoNeuT Detector in the NuMI Low-Energy Beam Line at Fermilab**
C. Anderson *et al.* [ArgoNeuT Collaboration], Journal of Instrumentation **7** 10019 (2012).
6. ***Proposal for an Electron Antineutrino Disappearance Search Using High-Rate ^8Li**
7. **Production and Decay**
A. Bungau *et al.*, Physical Review Letters **109** 141802 (2012).
8. ***Sterile Neutrino Search with Kaon Decay at Rest**
J. Spitz, Physical Review D **85** 093020 (2012).
9. ***Measuring Active-to-Sterile Neutrino Oscillations with Neutral Current Coherent Neutrino-Nucleus Scattering**
A.J. Anderson, J.M. Conrad, E. Figueroa-Feliciano, C. Ignarra, G. Karagiorgi, K. Scholberg, M.H. Shaevitz, and J. Spitz, Physical Review D **86** 013004 (2012).
10. ***First Measurements of Inclusive Muon Neutrino Charged Current Differential Cross Sections on Argon**
C. Anderson *et al.* [ArgoNeuT Collaboration], Physical Review Letters **108** 161802 (2012).
11. ***Coherent Neutrino Scattering in Dark Matter Detectors**
A.J. Anderson, J.M. Conrad, E. Figueroa-Feliciano, K. Scholberg, and J. Spitz, Physical Review D **84** 013008 (2011).
12. ***Atmospheric Tau Neutrinos in a Multi-kiloton Liquid Argon Detector**
J. Conrad, A. de Gouvêa, S. Shalgar, and J. Spitz, Physical Review D **82** 093012 (2010).
13. ***Renaissance of the ~1-TeV Fixed-Target Program**
T. Adams *et al.*, International Journal of Modern Physics A **25** 777 (2010).
14. ***A Regenerable Filter for Liquid Argon Purification**
A. Curioni *et al.*, Nuclear Instruments and Methods in Physics Research A **605** 306 (2009).

Other Peer-reviewed Publications

1. **First Measurement of Neutrino and Antineutrino Coherent Charged Pion Production on Argon**
R. Acciarri *et al.* [ArgoNeuT Collaboration], arXiv:1408.0598 (2014). Accepted by Physical Review Letters.
2. **Ortho-Positronium Observation in the Double Chooz Experiment**
Y. Abe *et al.* [Double Chooz Collaboration], Journal of High Energy Physics **10** 032 (2014).

- Using L/E Oscillation Probability Distributions**
3. A.A. Aguilar-Arevalo *et al.* [MiniBooNE Collaboration], arXiv:1407.3304 [hep-ex] (2014). Submitted to Physical Review D.
- Improved Measurements of the Neutrino Mixing Angle θ_{13} with the Double Chooz**
4. **Detector**
Y. Abe *et al.* [Double Chooz Collaboration], Journal of High Energy Physics **10** 086 (2014).
- Precision Muon Reconstruction in Double Chooz**
5. Y. Abe *et al.* [Double Chooz Collaboration], Nuclear Instruments and Methods in Physics Research A **764** 330 (2014)
- The Detection of Back-to-Back Proton Pairs in Charged-Current Neutrino Interactions with the ArgoNeuT Detector in the NuMI Low Energy Beam Line**
6. R. Acciarri *et al.* [ArgoNeuT Collaboration], Physical Review D **90** 012008 (2014).
- Measurements of Inclusive Muon Neutrino and Antineutrino Charged Current Differential Cross Sections on Argon in the NuMI Antineutrino Beam**
7. R. Acciarri *et al.* [ArgoNeuT Collaboration], Physical Review D **89** 112003 (2014).
- Background-Independent Measurement of θ_{13} in Double Chooz**
8. Y. Abe *et al.* [Double Chooz Collaboration], Physics Letters B **735** 51 (2014).
- Measurement of the Antineutrino Neutral-Current Elastic Differential Cross Section**
9. A.A. Aguilar-Arevalo *et al.* [MiniBooNE Collaboration], arXiv:1309.7257 [hep-ex] (2013). Submitted to Physical Review D.
- Cyclotrons as Drivers for Precision Neutrino Measurements**
10. A. Adelmann, J. Alonso, W.A. Barletta, J.M. Conrad, M.H. Shaevitz, J. Spitz, M. Toups, and L.A. Winslow, Advances in High Energy Physics **2014** 347097 (2014).
- Precision $\bar{\nu}_e$ -electron Scattering Measurements with IsoDAR to Search for New Physics**
11. J.M. Conrad, M.H. Shaevitz, I. Shimizu, J. Spitz, M. Toups, and L. Winslow, Physical Review D **89** 072010 (2014).
- A Study of Electron Recombination Using Highly Ionizing Particles in the ArgoNeuT Liquid Argon TPC**
12. R. Acciarri *et al.* [ArgoNeuT Collaboration], Journal of Instrumentation **8** P08005 (2013).
- First Measurement of the Muon Anti-Neutrino Double-Differential Charged Current Quasi-Elastic Cross Section**
13. A.A. Aguilar-Arevalo *et al.* [MiniBooNE Collaboration], Physical Review D **88** 032001 (2013).
- First Measurement of θ_{13} from Delayed Neutron Capture on Hydrogen in the Double Chooz Experiment**
14. Y. Abe *et al.* [Double Chooz Collaboration], Physics Letters B **723** 66 (2013).
- Improved search for $\bar{\nu}_\mu \rightarrow \bar{\nu}_e$ Oscillations in the MiniBooNE Experiment**
15. A.A. Aguilar-Arevalo *et al.* [MiniBooNE Collaboration], Physical Review Letters **110** 161801 (2013).
- Sterile Neutrino Fits to Short Baseline Neutrino Oscillation Measurements**
16. J.M. Conrad, C.M. Ignarra, G. Karagiorgi, M. Shaevitz, and J. Spitz, Advances in High Energy Physics **2013** 163897 (2013).
- Direct Measurement of Backgrounds Using Reactor-Off Data in Double Chooz**
17. Y. Abe *et al.* [Double Chooz Collaboration], Physical Review D **87** 011102 (2013).
- Test of Lorentz and CPT violation with Short Baseline Neutrino Oscillation Excesses**
18. A.A. Aguilar-Arevalo *et al.* [MiniBooNE Collaboration], Physics Letters B **718** 1303 (2013).

19. **Dual baseline search for muon antineutrino disappearance at $0.1 \text{ eV}^2 < \Delta m^2 < 100 \text{ eV}^2$**
A.A. Aguilar-Arevalo *et al.* [MiniBooNE Collaboration], Physical Review D **86** 052009 (2012).
20. **Reactor electron antineutrino disappearance in the Double Chooz experiment**
Y. Abe *et al.* [Double Chooz Collaboration], Physical Review D **86** 052008 (2012).
21. **Analysis of a Large Sample of Neutrino-Induced Muons with the ArgoNeuT Detector**
C. Anderson *et al.* [ArgoNeuT Collaboration], Journal of Instrumentation **7** 10020 (2012).
- Indication for the Disappearance of Reactor Electron Antineutrinos in the Double Chooz Experiment**
Y. Abe *et al.* [Double Chooz Collaboration], Physical Review Letters **108** 131801 (2012).
- Dual Baseline Search for Muon Neutrino Disappearance at $0.5 \text{ eV}^2 < \Delta m^2 < 40 \text{ eV}^2$**
23. K.B.M. Mahn *et al.* [MiniBooNE and SciBooNE Collaborations], Physical Review D **85** 032007 (2012).
- Measurement of the Neutrino Component of an Anti-neutrino Beam Observed by a Non-magnetized Detector**
A.A. Aguilar-Arevalo *et al.* [MiniBooNE Collaboration], Physical Review D **84** 072005 (2011).
- Measurement of ν_μ -induced Charged-Current Neutral Pion Production Cross Sections on Mineral Oil at $E_\nu \in 0.5 - 2.0 \text{ GeV}$**
A.A. Aguilar-Arevalo *et al.* [MiniBooNE Collaboration], Physical Review D **83** 052009 (2011).
- Measurement of Neutrino-Induced Charged-Current Charged Pion Production Cross Sections on Mineral Oil at $E_\nu \sim 1 \text{ GeV}$**
A.A. Aguilar-Arevalo *et al.* [MiniBooNE Collaboration], Physical Review D **83** 052007 (2011).
- The T2K Experiment**
27. K. Abe *et al.* [T2K Collaboration], Nuclear Instruments and Methods in Physics Research A **659** 106 (2011).
- Measurement of the Neutrino Neutral-Current Elastic Differential Cross Section**
28. A.A. Aguilar-Arevalo *et al.* [MiniBooNE Collaboration], Physical Review D **82** 092005 (2010).
- Event Excess in the MiniBooNE Search for $\bar{\nu}_\mu \rightarrow \bar{\nu}_e$ Oscillations**
29. A.A. Aguilar-Arevalo *et al.* [MiniBooNE Collaboration], Physical Review Letters **105** 181801 (2010).
- First Measurement of the Muon Neutrino Charged Current Quasielastic Double Differential Cross Section**
30. A.A. Aguilar-Arevalo *et al.* [MiniBooNE Collaboration], Physical Review D **81** 092005 (2010).
- Measurement of ν_μ and $\bar{\nu}_\mu$ Induced Neutral Current Single π^0 Production Cross Sections on Mineral Oil at $E_\nu \sim O(1 \text{ GeV})$**
31. A.A. Aguilar-Arevalo *et al.* [MiniBooNE Collaboration], Physical Review D **81** 013005 (2010).
- A Search for Core-Collapse Supernovae Using the MiniBooNE Neutrino Detector**
32. A.A. Aguilar-Arevalo *et al.* [MiniBooNE Collaboration], Physical Review D **81** 032001 (2010).
- Measurement of the ν_μ Charged Current π^+ to Quasi-Elastic Cross Section Ratio on Mineral Oil in a 0.8 GeV Neutrino Beam**
33. A.A. Aguilar-Arevalo *et al.* [MiniBooNE Collaboration], Physical Review Letters **103** 081801 (2009).
- A Search for Electron Antineutrino Appearance at the $\Delta m^2 \sim 1 \text{ eV}^2$ Scale**
34. A.A. Aguilar-Arevalo *et al.* [MiniBooNE Collaboration], Physical Review Letters **103** 111801 (2009).
- A Search for Muon Neutrino and Antineutrino Disappearance in MiniBooNE**
35. A.A. Aguilar-Arevalo *et al.* [MiniBooNE Collaboration], Physical Review Letters **103** 061802 (2009).

Proposals and Reports

*=Documents J. Spitz made a significant contribution to
**=Documents with J. Spitz as the corresponding author

- **LAr1-ND: Testing Neutrino Anomalies with Multiple LArTPC Detectors at Fermilab**, arXiv:1309.7987 [hep-ex] (2013).
- **Intensity Frontier Neutrino Working Group Snowmass Submission**, arXiv:1310.4340 [hep-ex] (2013).
- **Neutrinos**, arXiv:1310.4340 [hep-ex] (2013).
- ***Whitepaper on the DAE δ ALUS Program**, arXiv:1307.2949 [hep-ex] (2013).
- ****Cost-effective Design Options for IsoDAR**, arXiv:1210.4454 [hep-ex] (2012).
- **Fundamental Physics at the Intensity Frontier**, arXiv:1205.2671 [hep-ph] (2012).
- ***Light Sterile Neutrinos: A White Paper**, arXiv:1204.5379 [hep-ph] (2012).
- **The 2010 Interim Report of the Long-Baseline Neutrino Experiment Collaboration Physics Working Groups**, arXiv:1110.6249 [hep-ex] (2011).
- **A Study of Detector Configurations for the DUSEL CP Violation Searches Combining LBNE and DAE δ ALUS**, arXiv:1008.4967 [hep-ex] (2010).
- ***Expression of Interest for a Novel Search for CP Violation in the Neutrino Sector: DAE δ ALUS**, arXiv:1006.0260 [physics.ins-det] (2010).
- ***A Proposal for a New Experiment Using the Booster and NuMI Neutrino Beamlines: MicroBooNE**, (2007).
- ***Memorandum of Understanding for the 2007-2009 Test Beam Program, T962: ArgoNeuT**, (2007).
- **Addendum to the MiniBooNE Run Plan: Run Request for an Anti-Neutrino Oscillation Analysis**, (2007).
- **Tokai-to-Kamioka (T2K) Long Baseline Neutrino Oscillation Experiment Proposal**, (2006).

Conference Proceedings

IsoDAR and DAE δ ALUS

- J. Spitz, in preparation for the International Workshop on Neutrino Factories (NuFACT), Glasgow, Scotland, August 25-30, 2014; To be published by the Proceedings of Science.

Searches for Sterile Neutrino Mixing

- J. Spitz, in preparation for the International Workshop on Neutrino Factories (NuFACT), Glasgow, Scotland, August 25-30, 2014; To be published by the Proceedings of Science.

IsoDAR and DAE δ ALUS

- J. Spitz, prepared for the Particles and Nuclei International Conference (PANIC), Hamburg, Germany, August 25-29, 2014; To be published by DESY.

Future Short-Baseline Sterile Neutrino Searches with Accelerators

- J. Spitz, prepared for the International Conference on Neutrino Physics and Astrophysics (NEUTRINO), Boston, MA, June 1-7, 2014; To be published by the AIP Conference Proceedings.

Testing Lorentz Symmetry with the Double Chooz Experiment

- T. Katori and J. Spitz, prepared for the proceedings of the Sixth Meeting on CPT and Lorentz Symmetry (CPT 2013), Bloomington, IN, June 17-21, 2013; *CPT and Lorentz Symmetry* **3** 9 (2013).

High Current Cyclotrons for Future Neutrino Experiments

- L. Calabretta and J. Spitz, prepared for the proceedings of the Workshop on Neutrino Telescopes (NeuTel 2013), Venice, Italy, March 11-15, 2013; *Proceedings of Science NeuTel-2013* 034 (2013).

Coherent Neutrino Scattering as a Probe of Oscillations

- J. Spitz, prepared for the proceedings of the 2012 Conference on the Intersections of Particle and Nuclear Physics (CIPANP), St. Petersburg, FL, May 29 - June 3, 2012; *AIP Conference Proceedings* **1560** 217 (2013).

Simulations of Pion Production in the DAE δ ALUS Target

- A. Bungau, R. Barlow, M. Shaevitz, J. Conrad, J. Spitz, and T. Smidt, prepared for the proceedings of the 2012 International Particle Accelerator Conference, New Orleans, LA, May 20-25 2012; arXiv:1205.5528 [physics.ins-det], IPAC-2012-THPPR074.

Target Studies for the Production of Lithium-8 for Neutrino Physics Using a Low Energy Cyclotron

- A. Bungau, R. Barlow, M. Shaevitz, J. Conrad, and J. Spitz, prepared for the proceedings of the 2012 International Particle Accelerator Conference, New Orleans, LA, May 20-25, 2012; arXiv:1205.5790 [physics.acc-ph], IPAC-2012-THPPR073.

Status of the ArgoNeuT Reconstruction and Analysis

- J. Spitz, for the ArgoNeuT Collaboration, prepared for the proceedings of the 2011 Neutrino-Nucleus Interactions Conference (NuInt), Dehradun, India, March 7-11 2011; *AIP Conference Proceedings* **1405** 53 (2011).

The ArgoNeuT Experiment

- J. Spitz, for the ArgoNeuT Collaboration, prepared for the proceedings of the 2010 International Conference on High Energy Physics (ICHEP), Paris, France, July 22-28 2010; *Proceedings of Science ICHEP-2010* 315 (2010).

ArgoNeuT and the Neutrino-Argon Charged Current, Quasi-Elastic Cross Section

- J. Spitz, for the ArgoNeuT Collaboration, prepared for the proceedings of the 2010 International Nuclear Physics Conference (INPC), Vancouver, Canada, July 4-9 2010; *Journal of Physics: Conference Series* **312** 072017 (2011).

ArgoNeuT, a Liquid Argon Time Projection Chamber in a Low Energy Neutrino Beam

- J. Spitz, for the ArgoNeuT Collaboration, prepared for the proceedings of the 11th International Conference on Topics in Astroparticle and Underground Physics (TAUP), Gran Sasso, Assergi, Italy, July 1-5 2009; *Journal of Physics: Conference Series* **203** 012108 (2010).

Colloquium/Seminar/Conference/Workshop Presentations

1. The Future of the Sterile Neutrino

1. Particle Seminar talk, SUNY Stony Brook, 11/21/2014.

IsoDAR and DAE δ ALUS

2. International Workshop on Next Generation Nucleon Decay and Neutrino Detectors (NNN) talk, Paris, France, 11/4/2014.

3. Sterile Neutrinos

3. Physics Department Colloquium talk, Brookhaven National Lab, 9/30/2014.

4. IsoDAR and DAE δ ALUS

4. International Workshop on Neutrino Factories (NuFACT) talk, Glasgow, Scotland, 8/29/2014.

5. Searches for Sterile Neutrino Mixing

5. International Workshop on Neutrino Factories (NuFACT) talk, Glasgow, Scotland, 8/27/2014.

Future Short-baseline Sterile Neutrino Searches with Accelerators

6. International Conference on Neutrino Physics and Astrophysics (NEUTRINO) talk, Boston, MA, 6/7/2014.

7. Testing Einstein with Neutrinos

7. Pappalardo Symposium talk, MIT, 5/16/2014.

8. Closing in on the Neutrino

8. Physics Department Colloquium talk, Amherst College, 3/6/2014.

9. Using Kaons to Unlock the Secrets of the Neutrino

9. Laboratory for Nuclear Science Seminar talk, MIT, 2/21/2014.

10. IsoDAR and DAE δ ALUS

10. ICFA Neutrino European Meeting talk, Paris, France, 1/10/2014.

IsoDAR and the DAE δ ALUS Program

11. International Workshop on Next Generation Nucleon Decay and Neutrino Detectors (NNN) talk, Tokyo, Japan, 11/12/2013.

12. Closing in on the Neutrino

12. Physics Department Colloquium talk, Williams College, 9/27/2013.

13. Multiple Probes of Lorentz Violation with Reactor Antineutrinos

13. APS Division of Particles and Fields (DPF) Meeting talk, Santa Cruz, CA, 8/16/2013.

14. Closing in on the Neutrino

14. Physics Department Colloquium talk, Syracuse University, 4/18/2013.

15. Kaon Decay-at-rest Sources for Sterile Neutrino Studies

15. Snowmass Workshop on the Intensity Frontier talk, Brookhaven National Laboratory, 4/17/2013.

16. Using Kaons to Probe the Sterile Neutrino

16. Particle/Nuclear Seminar talk, University of Colorado at Boulder, 4/15/2013.

17. IsoDAR: A Definitive Search for Sterile Neutrinos

17. APS April Meeting 2013 talk, on behalf of Prof. William Barletta, Denver, CO, 4/14/2013.

18. Double Chooz and the First Test of Lorentz Violation with a Reactor-based Antineutrino Experiment

18. APS April Meeting 2013 poster, Denver, CO, 4/14/2013.

19. Kaon Decay at-rest as a Probe of the Sterile Neutrino

19. APS April Meeting 2013 talk, Denver, CO, 4/14/2013.

20. Kaons and the Sterile Neutrino

20. Graduate Student Seminar talk, MIT, 4/5/2013.

21. Using Kaons to Probe the Sterile Neutrino

21. High Energy Physics Seminar talk, Tufts University, 3/28/2013.

22. A New Probe of the Sterile Neutrino

22. High Energy Particle Seminar talk, Columbia University, 3/27/2013.

23. A New Way to Probe the Sterile Neutrino: Kaon Decay-at-Rest

23. New Directions in Neutrino Physics Conference talk, Aspen, CO, 2/5/2013.

24. Searching for New Physics with Neutrinos

24. Laboratory for Nuclear Science Seminar talk, MIT, 11/13/2012.

25. **Searching for Lorentz Violation with Reactor Antineutrinos**
 APS Division of Nuclear Physics (DNP) Meeting talk, Newport Beach, CA, 10/27/2012.
- Coherent Neutrino Scattering and Sterile Neutrino Searches with a Decay-at-Rest**
26. **Source**
 Project X Physics Study talk, Fermilab, 6/20/2012.
- Coherent Neutrino Scattering as a Probe of Oscillations**
27. Conference on the Intersections of Particle and Nuclear Physics (CIPANP) talk, St. Petersburg, FL, 5/31/2012.
- The Disappearing Neutrino**
28. Pappalardo Symposium talk, MIT, 5/18/2012.
- Searching for the Sterile Neutrino**
29. Faculty Lunch Seminar talk, MIT, 5/2/2012.
- Probing the Neutrino with Liquid Argon**
30. Laboratory for Nuclear Science Seminar talk, MIT, 3/20/2012.
- ArgoNeuT Physics Results**
31. Wine and Cheese Seminar talk, Fermilab, 2/24/2012.
- Neutrino Detection with Liquid Argon**
32. Experimental Physics Seminar talk, Princeton University, 12/15/2011.
- Low Energy Neutrino Physics at the Intensity Frontier**
33. Fundamental Physics at the Intensity Frontier conference talk, Rockville, MD, 12/1/2011.
- Measuring Muon Neutrino Charged Current Differential Cross Sections on Argon**
34. International Workshop on Next Generation Nucleon Decay and Neutrino Detectors (NNN) talk, Zurich, Switzerland, 11/8/2011.
- The ArgoNeuT Analysis**
35. Neutrino-Nucleus Interactions Conference (NuInt) talk, Dehradun, India, 3/7/2011.
- LArTPC R&D with ArgoNeuT and MicroBooNE**
36. Fermilab Workshop on Detector R&D poster, Fermilab, 10/7/2010.
- LArTPCs and Neutrino Detection at Fermilab**
37. Neutrino University Summer School talk, Fermilab, 8/12/2010.
- The ArgoNeuT Experiment**
38. International Conference on High Energy Physics (ICHEP) talk, Paris, France, 7/24/2010.
- ArgoNeuT and the Neutrino-Argon Charged Current, Quasi-Elastic Cross Section**
39. International Nuclear Physics Conference (INPC) poster, Vancouver, Canada, 7/5/2010.
- ArgoNeuT, a Liquid Argon Time Projection Chamber in a Low Energy Neutrino Beam**
40. Topics in Astroparticle and Underground Physics (TAUP) conference talk, Rome, Italy, 7/2/2009.
- ArgoNeuT and MicroBooNE: LArTPCs at Fermilab**
41. Fermilab User's Meeting 2009 talk, Fermilab, 6/4/2009.
- The MicroBooNE Experiment at Fermilab**
42. Fermilab User's Meeting 2009 poster, Fermilab, 6/3/2009.
- ArgoNeuT: A Physics-Minded Liquid Argon Time Projection Chamber Test Stand**
43. APS April Meeting 2009 talk, Denver, CO, 5/5/2009.
- MicroBooNE: A Liquid Argon Time Projection Chamber in the Booster Neutrino Beam**
44. APS April Meeting 2009 poster, Denver, CO, 5/2/2009.

- 45. Physics with ArgoNeuT**
Weak Interaction Seminar talk, Yale University, 3/26/2009.
- 46. ArgoNeuT and MicroBooNE: Neutrino Detection with Liquid Argon**
Weak Interaction Seminar talk, Yale University, 5/8/2008.
- 47. Neutrino Physics and R&D with ArgoNeuT**
APS April Meeting 2008 talk, St. Louis, MO, 4/14/2008.
- 48. The MicroBooNE Experiment: A Liquid Argon TPC**
Project X Workshop poster, Fermilab, 11/17/2007.
- 49. Gas Electron Multipliers and Detector Development for Neutrinos and Dark Matter**
Weak Interaction Seminar talk, Yale University, 4/11/2007.
- 50. T2K Beam Monte Carlo**
APS Four Corners Meeting 2005 talk, Denver, CO, 10/13/2005.

Teaching Experience

- Guest lecturer, MIT: 8.276 (Undergraduate, Nuclear and Particle Physics) for Prof. M. Williams, Spring 2014.
- Guest lecturer, MIT: 8.701 (Graduate, Nuclear and Particle Physics) for Prof. F. Wilczek, Fall 2013.
- Guest lecturer, MIT: 8.811 (Graduate, Particle Physics 2) for Prof. M. Klute, Fall 2013.
- Guest lecturer, MIT: 8.276 (Undergraduate, Nuclear and Particle Physics) for Prof. M. Williams, Spring 2013.
- Teaching assistant, Yale University: Physics 166 (Undergraduate, General Physics Laboratory 2), Spring 2008.
- Teaching assistant, Yale University: Physics 206 (Undergraduate, Modern Physical Measurement 2), Fall 2007.
- Teaching assistant, Yale University: Physics 205 (Undergraduate, Modern Physical Measurement 1), Fall 2006, Spring 2007.

References

Available upon request.